

Results of Directional Survey

API number:	30-025-41340		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	THISTLE UNIT # 56H

surface	ULSTR:	O	22	T 23S	R 33E
				150 FSL	2200 FEL

BH Loc	ULSTR:	O	27	T 23S	R 33E
15982	MD	11267.9	TVD	327 FSL	1953 FEL
				4953 FNL	

Top Perf/OH	ULSTR:	O	27	T 23S	R 33E
11438	MD	11211.4	TVD	420 FNL	2053 FEL

Bot Perf/OH	ULSTR:	O	27	T 23S	R 33E
15850	MD	11268.5	TVD	458 FSL	1956 FEL
				4822 FNL	

	MD	N/S	E/W	VD
	11408	-542.79	146.12	11199.26
TOP PERFS/OH	11438	-570.23	146.61	11211.37
	11439	-571.14	146.63	11211.77
	15765	-4891.95	241.77	11268.63
BOT PERFS/OH	15850	-4971.59	243.63	11268.47
	15860	-4980.96	243.85	11268.45

NEXT TO LAST	15924	-5044.94	245.48	11268.14
LAST READING	15982	-5102.91	247.05	11267.86
TD	15982	-5102.91	247.05	11267.86

Surface Location	150	FS	2200	FE
Projected BHL	4953	FN	1953	FE
Location of				
Top Perfs/OH	420	FN	2053	FE
Bottom Perfs/OH	4822	FN	1956	FE

SUMMARY of Subsurface Locations

Surface Location	O-22-23S-33E	150	FS	2200	FE	Vert. Depth
Top Perfs/OH	B-27-23S-33E	420	FN	2053	FE	11211.37
Bottom Perfs/OH	O-27-23S-33E	4822	FN	1956	FE	11268.47
Projected TD	O-27-23S-33E	4953	FN	1953	FE	11267.86

JUL 28 2014



THISTLE UNIT 56H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County LEA	Field Name JOHNSON RANCH	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541340	Latitude (°) 32° 17' 0.057" N	Longitude (°) 103° 33' 31.639" W	Ground Elev... 3,691.90	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,716.90	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID 33981	Kick Off Depth (ftKB)	Vertical Section Direction (°) 163.81
Actual Deviation Survey	Definitive?	Proposed?	Proposed Deviation Survey	

Deviation Survey

Date		Description			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
Wellbore Name ST01		Parent Wellbore OH		SAP Well ID 33981			Kick Off Depth (ftKB) 10,638.0		Vertical Section Direction (°) 177.10	
Actual Deviation Survey OTHERS/MWD ST01, Proposed? No				Definitive? Yes		Proposed? No		Proposed Deviation Survey		

Deviation Survey

Date 10/29/2013		Description OTHERS/MWD ST01			
MD Tie In (ftKB) 0.00	TVD Tie In (ftKB) 0.00	Inclination Tie In (°) 0.00	Azimuth Tie In (°) 0.00	NSTie In (ft) 0.00	EW Tie In (ft) 0.00

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
10/12/2...	82.88	0.36	272.86	82.88	-0.03	0.01	-0.26	0.43	GYRO	GYRO DATA
10/12/2...	171.91	0.45	281.88	171.91	-0.14	0.10	-0.88	0.12	GYRO	GYRO DATA
10/12/2...	260.42	0.49	288.02	260.41	-0.37	0.29	-1.58	0.07	GYRO	GYRO DATA
10/12/2...	349.88	0.51	297.73	349.87	-0.71	0.59	-2.30	0.10	GYRO	GYRO DATA
10/12/2...	444.56	0.47	293.14	444.55	-1.09	0.94	-3.03	0.06	GYRO	GYRO DATA
10/12/2...	532.28	0.49	293.54	532.26	-1.42	1.23	-3.70	0.02	GYRO	GYRO DATA
10/12/2...	627.46	0.49	308.82	627.44	-1.87	1.65	-4.39	0.14	GYRO	GYRO DATA
10/12/2...	719.17	0.44	294.08	719.15	-2.29	2.04	-5.02	0.14	GYRO	GYRO DATA
10/12/2...	813.53	0.29	290.50	813.51	-2.55	2.27	-5.57	0.16	GYRO	GYRO DATA
10/12/2...	907.79	0.24	292.98	907.76	-2.73	2.43	-5.98	0.05	GYRO	GYRO DATA
10/12/2...	1,002.21	0.19	303.20	1,002.18	-2.91	2.59	-6.29	0.07	GYRO	GYRO DATA
10/12/2...	1,096.38	0.18	303.35	1,096.35	-3.09	2.76	-6.55	0.01	GYRO	GYRO DATA
10/12/2...	1,191.08	0.22	322.02	1,191.05	-3.32	2.99	-6.78	0.08	GYRO	GYRO DATA
10/12/2...	1,254.00	0.22	319.92	1,253.97	-3.52	3.17	-6.93	0.01	GYRO	GYRO DATA
10/15/2...	1,470.00	0.26	346.86	1,469.97	-4.33	3.97	-7.31	0.05	MWD	BHI
10/16/2...	1,564.00	1.21	84.32	1,563.96	-4.59	4.27	-6.37	1.35	MWD	BHI
10/16/2...	1,658.00	3.28	86.23	1,657.89	-4.68	4.55	-2.70	2.20	MWD	BHI
10/16/2...	1,752.00	5.50	90.93	1,751.61	-4.42	4.65	4.49	2.39	MWD	BHI
10/16/2...	1,846.00	6.11	93.38	1,845.12	-3.57	4.28	13.98	0.70	MWD	BHI
10/16/2...	1,940.00	5.97	95.40	1,938.60	-2.32	3.53	23.84	0.27	MWD	BHI
10/16/2...	2,034.00	7.06	85.11	2,032.00	-1.81	3.56	34.47	1.69	MWD	BHI
10/16/2...	2,129.00	7.78	80.09	2,126.20	-2.80	5.17	46.62	1.02	MWD	BHI
10/16/2...	2,189.00	7.78	80.09	2,185.65	-3.79	6.56	54.62	0.00	MWD	BHI
10/16/2...	2,223.00	7.59	80.75	2,219.34	-4.32	7.32	59.10	0.62	MWD	BHI
10/16/2...	2,318.00	5.56	82.96	2,313.71	-5.35	8.89	69.86	2.15	MWD	BHI
10/16/2...	2,507.00	1.41	89.46	2,502.32	-5.91	10.04	81.28	2.20	MWD	BHI
10/16/2...	2,601.00	0.15	165.60	2,596.31	-5.74	9.93	82.47	1.47	MWD	BHI
10/16/2...	2,695.00	0.44	247.32	2,690.31	-5.50	9.67	82.17	0.47	MWD	BHI
10/16/2...	2,790.00	0.22	298.92	2,785.31	-5.47	9.62	81.67	0.37	MWD	BHI
10/16/2...	2,978.00	0.10	23.86	2,973.31	-5.81	9.94	81.42	0.12	MWD	BHI
10/16/2...	3,073.00	0.37	302.55	3,068.31	-6.06	10.18	81.19	0.39	MWD	BHI
10/16/2...	3,167.00	0.48	302.55	3,162.31	-6.47	10.56	80.61	0.12	MWD	BHI
10/16/2...	3,261.00	0.44	324.29	3,256.30	-7.00	11.06	80.06	0.19	MWD	BHI
10/16/2...	3,356.00	0.37	326.87	3,351.30	-7.57	11.62	79.68	0.08	MWD	BHI
10/16/2...	3,450.00	0.28	315.47	3,445.30	-8.00	12.04	79.36	0.12	MWD	BHI
10/16/2...	3,544.00	0.25	350.75	3,539.30	-8.38	12.40	79.16	0.17	MWD	BHI



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				Tubing Head Elevation (ft)

Survey Data

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10/16/2...	3,639.00	0.25	306.41	3,634.30	-8.72	12.73	78.96	0.20	MWD	BHI
10/16/2...	3,733.00	0.31	350.32	3,728.30	-9.10	13.10	78.76	0.23	MWD	BHI
10/16/2...	3,827.00	0.19	328.88	3,822.30	-9.49	13.49	78.63	0.16	MWD	BHI
10/16/2...	3,922.00	0.33	344.77	3,917.30	-9.90	13.88	78.48	0.16	MWD	BHI
10/16/2...	4,016.00	0.22	297.26	4,011.29	-10.25	14.23	78.25	0.26	MWD	BHI
10/16/2...	4,111.00	0.15	340.71	4,106.29	-10.46	14.43	78.04	0.16	MWD	BHI
10/16/2...	4,205.00	0.37	249.81	4,200.29	-10.49	14.44	77.72	0.43	MWD	BHI
10/16/2...	4,300.00	0.44	258.20	4,295.29	-10.34	14.26	77.07	0.10	MWD	BHI
10/16/2...	4,394.00	0.20	129.63	4,389.29	-10.18	14.08	76.85	0.62	MWD	BHI
10/16/2...	4,498.00	0.89	120.72	4,493.28	-9.61	13.55	77.68	0.67	MWD	BHI
10/16/2...	4,677.00	1.17	112.78	4,672.26	-8.04	12.14	80.56	0.18	MWD	BHI
10/16/2...	4,772.00	1.30	115.77	4,767.23	-7.11	11.29	82.43	0.15	MWD	BHI
10/16/2...	4,866.00	1.89	112.97	4,861.20	-5.92	10.22	84.81	0.63	MWD	BHI
10/16/2...	4,961.00	2.14	114.20	4,956.14	-4.43	8.88	87.87	0.27	MWD	BHI
10/16/2...	5,055.00	1.07	139.88	5,050.10	-2.93	7.49	90.04	1.34	MWD	BHI
10/16/2...	5,118.00	0.87	142.19	5,113.09	-2.07	6.67	90.71	0.32	MWD	BHI
10/16/2...	5,268.00	0.70	125.00	5,263.08	-0.57	5.24	92.16	0.19	SS	FLO DRIFT
10/16/2...	5,362.00	0.80	130.00	5,357.07	0.23	4.49	93.13	0.13	SS	FLO DRIFT
10/16/2...	5,456.00	1.10	132.00	5,451.06	1.31	3.46	94.31	0.32	SS	FLO DRIFT
10/16/2...	5,551.00	1.20	135.00	5,546.04	2.69	2.15	95.69	0.12	SS	FLO DRIFT
10/16/2...	5,645.00	1.00	141.00	5,640.02	4.09	0.82	96.90	0.25	SS	FLO DRIFT
10/16/2...	5,740.00	1.10	136.00	5,735.00	5.44	-0.48	98.06	0.14	SS	FLO DRIFT
10/16/2...	5,835.00	1.10	124.00	5,829.99	6.68	-1.65	99.44	0.24	SS	FLO DRIFT
10/16/2...	6,024.00	1.00	123.00	6,018.96	8.73	-3.56	102.33	0.05	SS	FLO DRIFT
10/16/2...	6,212.00	1.10	127.00	6,206.92	10.85	-5.54	105.15	0.07	SS	FLO DRIFT
10/16/2...	6,401.00	0.80	100.00	6,395.90	12.31	-6.86	107.90	0.28	SS	FLO DRIFT
10/16/2...	6,770.00	1.30	87.00	6,764.84	12.88	-7.09	114.61	0.15	SS	FLO DRIFT
10/16/2...	6,828.00	1.10	83.00	6,822.82	12.84	-6.99	115.82	0.37	SS	FLO DRIFT
10/16/2...	7,023.00	1.10	65.00	7,017.79	12.00	-5.97	119.38	0.18	SS	FLO DRIFT
10/16/2...	7,297.00	1.50	72.00	7,291.72	10.08	-3.75	125.17	0.16	SS	FLO DRIFT
10/16/2...	7,683.00	1.80	102.00	7,677.56	10.32	-3.45	135.91	0.23	SS	FLO DRIFT
10/16/2...	7,872.00	2.20	115.00	7,866.45	12.78	-5.60	142.10	0.32	SS	FLO DRIFT
10/16/2...	8,052.00	2.50	126.00	8,046.30	16.86	-9.37	148.41	0.30	SS	FLO DRIFT
10/16/2...	8,289.00	3.10	121.00	8,283.01	23.68	-15.71	158.08	0.27	SS	FLO DRIFT
10/16/2...	8,394.00	3.30	124.00	8,387.85	27.08	-18.86	163.02	0.25	SS	FLO DRIFT
10/16/2...	8,667.00	3.30	127.00	8,660.40	36.84	-27.98	175.81	0.06	SS	FLO DRIFT
10/16/2...	9,006.00	4.10	139.00	8,998.69	52.63	-43.00	191.55	0.33	SS	FLO DRIFT
10/16/2...	9,290.00	3.00	158.00	9,282.15	67.65	-57.55	201.00	0.56	SS	FLO DRIFT
10/16/2...	9,375.00	1.40	176.00	9,367.09	70.79	-60.65	201.90	2.03	SS	FLO DRIFT
10/16/2...	9,762.00	3.20	273.00	9,753.86	74.41	-64.80	191.44	0.94	SS	FLO DRIFT
10/16/2...	10,084.00	4.50	242.00	10,075.16	78.84	-70.26	171.31	0.75	SS	FLO DRIFT
10/16/2...	10,367.00	3.40	261.00	10,357.50	84.44	-76.79	153.22	0.60	SS	FLO DRIFT
10/16/2...	10,602.00	2.80	261.00	10,592.15	85.79	-78.78	140.67	0.26	SS	FLO DRIFT
11/1/2013	10,715.00	11.10	193.99	10,704.33	96.52	-89.79	135.30	9.14	MWD	BAKER HUGHES INTEQ
11/1/2013	10,746.00	14.51	190.79	10,734.56	103.15	-96.51	133.85	11.23	MWD	BAKER HUGHES INTEQ
11/1/2013	10,778.00	18.38	187.10	10,765.24	112.02	-105.45	132.47	12.52	MWD	BAKER HUGHES INTEQ
11/1/2013	10,810.00	21.74	181.42	10,795.30	122.90	-116.39	131.70	12.13	MWD	BAKER HUGHES INTEQ
11/1/2013	10,841.00	25.64	178.93	10,823.68	135.34	-128.84	131.69	12.99	MWD	BAKER HUGHES INTEQ
11/1/2013	10,873.00	28.81	179.71	10,852.13	149.96	-143.48	131.85	9.97	MWD	BAKER HUGHES INTEQ
11/1/2013	10,904.00	32.77	180.49	10,878.76	165.81	-159.34	131.82	12.84	MWD	BAKER HUGHES INTEQ
11/1/2013	10,936.00	37.01	179.54	10,905.00	184.08	-177.64	131.82	13.36	MWD	BAKER HUGHES INTEQ
11/1/2013	10,967.00	40.27	177.10	10,929.21	203.43	-196.98	132.41	11.61	MWD	BAKER HUGHES INTEQ
11/1/2013	10,999.00	43.72	176.40	10,952.99	224.84	-218.36	133.62	10.88	MWD	BAKER HUGHES INTEQ
11/1/2013	11,030.00	45.31	176.18	10,975.10	246.57	-240.04	135.03	5.15	MWD	BAKER HUGHES INTEQ
11/1/2013	11,062.00	47.19	175.34	10,997.22	269.67	-263.09	136.74	6.17	MWD	BAKER HUGHES INTEQ



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Survey Data

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11/1/2013	11,093.00	49.83	175.52	11,017.76	292.88	-286.24	138.59	8.53	MWD	BAKER HUGHES INTEQ
11/1/2013	11,125.00	51.63	175.04	11,038.01	317.64	-310.93	140.63	5.74	MWD	BAKER HUGHES INTEQ
11/1/2013	11,156.00	53.14	178.21	11,056.94	342.19	-335.43	142.07	9.45	MWD	BAKER HUGHES INTEQ
11/1/2013	11,188.00	53.84	179.03	11,075.98	367.90	-361.15	142.69	3.00	MWD	BAKER HUGHES INTEQ
11/1/2013	11,219.00	54.26	179.98	11,094.18	392.98	-386.24	142.90	2.83	MWD	BAKER HUGHES INTEQ
11/1/2013	11,250.00	53.36	179.71	11,112.48	417.97	-411.26	142.97	2.99	MWD	BAKER HUGHES INTEQ
11/1/2013	11,282.00	52.00	179.04	11,131.88	443.39	-436.71	143.25	4.56	MWD	BAKER HUGHES INTEQ
11/1/2013	11,313.00	53.60	178.45	11,150.62	468.07	-461.39	143.79	5.38	MWD	BAKER HUGHES INTEQ
11/1/2013	11,345.00	57.17	178.18	11,168.80	494.40	-487.71	144.57	11.18	MWD	BAKER HUGHES INTEQ
11/1/2013	11,376.00	61.25	178.37	11,184.66	521.02	-514.32	145.37	13.17	MWD	BAKER HUGHES INTEQ
11/1/2013	11,408.00	64.46	178.58	11,199.26	549.48	-542.79	146.12	10.05	MWD	BAKER HUGHES INTEQ
11/1/2013	11,439.00	67.93	179.37	11,211.77	577.83	-571.14	146.63	11.43	MWD	BAKER HUGHES INTEQ
11/1/2013	11,483.00	73.29	179.55	11,226.37	619.28	-612.63	147.02	12.19	MWD	BAKER HUGHES INTEQ
11/1/2013	11,515.00	76.02	180.75	11,234.84	650.09	-643.48	146.93	9.27	MWD	BAKER HUGHES INTEQ
11/1/2013	11,546.00	77.85	181.44	11,241.85	680.21	-673.67	146.36	6.29	MWD	BAKER HUGHES INTEQ
11/1/2013	11,578.00	78.61	181.29	11,248.38	711.45	-704.99	145.61	2.42	MWD	BAKER HUGHES INTEQ
11/1/2013	11,609.00	79.55	180.84	11,254.25	741.82	-735.42	145.05	3.35	MWD	BAKER HUGHES INTEQ
11/1/2013	11,641.00	81.32	180.41	11,259.57	773.31	-766.98	144.70	5.69	MWD	BAKER HUGHES INTEQ
11/1/2013	11,672.00	83.18	180.41	11,263.75	803.98	-797.69	144.48	6.00	MWD	BAKER HUGHES INTEQ
11/1/2013	11,704.00	85.16	180.00	11,267.00	835.76	-829.52	144.37	6.32	MWD	BAKER HUGHES INTEQ
11/1/2013	11,798.00	89.26	181.64	11,271.57	929.43	-923.38	143.02	4.70	MWD	BAKER HUGHES INTEQ
11/1/2013	11,893.00	89.60	181.13	11,272.52	1,024.16	-1,018.35	140.73	0.65	MWD	BAKER HUGHES INTEQ
11/1/2013	11,987.00	89.35	180.09	11,273.38	1,117.98	-1,112.33	139.73	1.14	MWD	BAKER HUGHES INTEQ
11/1/2013	12,081.00	88.58	178.10	11,275.08	1,211.90	-1,206.30	141.21	2.27	MWD	BAKER HUGHES INTEQ
11/1/2013	12,176.00	89.17	177.73	11,276.94	1,306.87	-1,301.22	144.67	0.73	MWD	BAKER HUGHES INTEQ
11/1/2013	12,270.00	89.63	177.77	11,277.92	1,400.86	-1,395.14	148.36	0.49	MWD	BAKER HUGHES INTEQ
11/1/2013	12,364.00	90.03	177.50	11,278.20	1,494.86	-1,489.06	152.23	0.51	MWD	BAKER HUGHES INTEQ
11/1/2013	12,459.00	90.06	177.51	11,278.13	1,589.85	-1,583.97	156.37	0.03	MWD	BAKER HUGHES INTEQ
11/1/2013	12,553.00	88.89	176.77	11,278.99	1,683.85	-1,677.85	161.06	1.47	MWD	BAKER HUGHES INTEQ
11/1/2013	12,648.00	89.26	176.93	11,280.52	1,778.83	-1,772.69	166.28	0.42	MWD	BAKER HUGHES INTEQ
11/1/2013	12,742.00	89.88	177.11	11,281.23	1,872.83	-1,866.56	171.17	0.69	MWD	BAKER HUGHES INTEQ
11/1/2013	12,837.00	88.31	177.46	11,282.73	1,967.82	-1,961.44	175.67	1.69	MWD	BAKER HUGHES INTEQ
11/1/2013	12,931.00	89.01	177.27	11,284.93	2,061.79	-2,055.31	179.99	0.77	MWD	BAKER HUGHES INTEQ
11/1/2013	13,026.00	88.37	177.28	11,287.10	2,156.76	-2,150.18	184.50	0.67	MWD	BAKER HUGHES INTEQ
11/1/2013	13,120.00	88.92	177.39	11,289.32	2,250.74	-2,244.05	188.87	0.60	MWD	BAKER HUGHES INTEQ
11/1/2013	13,215.00	89.51	177.34	11,290.62	2,345.72	-2,338.94	193.24	0.62	MWD	BAKER HUGHES INTEQ
11/1/2013	13,309.00	89.85	177.55	11,291.15	2,439.72	-2,432.85	197.43	0.43	MWD	BAKER HUGHES INTEQ
11/1/2013	13,404.00	90.25	177.34	11,291.07	2,534.72	-2,527.75	201.66	0.48	MWD	BAKER HUGHES INTEQ
11/1/2013	13,498.00	90.80	177.01	11,290.21	2,628.72	-2,621.64	206.30	0.68	MWD	BAKER HUGHES INTEQ
11/1/2013	13,593.00	90.00	176.57	11,289.54	2,723.71	-2,716.48	211.61	0.96	MWD	BAKER HUGHES INTEQ
11/1/2013	13,687.00	88.77	177.81	11,290.55	2,817.70	-2,810.36	216.22	1.86	MWD	BAKER HUGHES INTEQ
11/1/2013	13,782.00	88.61	177.72	11,292.72	2,912.67	-2,905.26	219.93	0.19	MWD	BAKER HUGHES INTEQ
11/1/2013	13,876.00	89.45	177.82	11,294.31	3,006.65	-2,999.18	223.58	0.90	MWD	BAKER HUGHES INTEQ
11/1/2013	13,971.00	90.65	178.08	11,294.23	3,101.64	-3,094.12	226.98	1.29	MWD	BAKER HUGHES INTEQ
11/1/2013	14,065.00	91.08	178.29	11,292.81	3,195.61	-3,188.06	229.96	0.51	MWD	BAKER HUGHES INTEQ
11/1/2013	14,160.00	92.13	179.49	11,290.15	3,290.52	-3,283.00	231.80	1.68	MWD	BAKER HUGHES INTEQ
11/1/2013	14,254.00	92.93	180.15	11,286.00	3,384.32	-3,376.91	232.09	1.10	MWD	BAKER HUGHES INTEQ
11/1/2013	14,349.00	93.77	180.15	11,280.45	3,479.03	-3,471.74	231.85	0.88	MWD	BAKER HUGHES INTEQ
11/1/2013	14,443.00	94.67	180.18	11,273.53	3,572.64	-3,565.49	231.58	0.96	MWD	BAKER HUGHES INTEQ
11/1/2013	14,538.00	94.26	181.48	11,266.14	3,667.15	-3,660.19	230.20	1.43	MWD	BAKER HUGHES INTEQ
11/1/2013	14,632.00	93.52	181.33	11,259.76	3,760.66	-3,753.94	227.90	0.80	MWD	BAKER HUGHES INTEQ
11/1/2013	14,727.00	93.36	182.00	11,254.06	3,855.19	-3,848.73	225.15	0.72	MWD	BAKER HUGHES INTEQ
11/1/2013	14,821.00	91.23	181.01	11,250.30	3,948.83	-3,942.61	222.68	2.50	MWD	BAKER HUGHES INTEQ
11/1/2013	14,915.00	88.27	181.18	11,250.71	4,042.59	-4,036.59	220.89	3.15	MWD	BAKER HUGHES INTEQ
11/1/2013	15,010.00	89.26	180.48	11,252.75	4,137.37	-4,131.55	219.51	1.28	MWD	BAKER HUGHES INTEQ



Directional Survey

District DELAWARE BASIN	County LEA	Field Name JOHNSON RANCH	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location SEC22 T23S R33E	API/UWI 3002541340	Latitude (°) 32° 17' 0.057" N	Longitude (°) 103° 33' 31.639" W	Ground Elev... 3,691.90	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,716.90	Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
11/1/2013	15,104.00	88.64	177.81	11,254.48	4,231.28	-4,225.52	220.91	2.92	MWD	BAKER HUGHES INTEQ
11/1/2013	15,199.00	87.93	177.54	11,257.32	4,326.23	-4,320.40	224.76	0.80	MWD	BAKER HUGHES INTEQ
11/1/2013	15,293.00	88.73	177.73	11,260.06	4,420.19	-4,414.27	228.64	0.87	MWD	BAKER HUGHES INTEQ
11/1/2013	15,388.00	88.55	177.83	11,262.31	4,515.16	-4,509.18	232.32	0.22	MWD	BAKER HUGHES INTEQ
11/1/2013	15,482.00	88.33	178.41	11,264.87	4,609.11	-4,603.09	235.40	0.66	MWD	BAKER HUGHES INTEQ
11/1/2013	15,576.00	89.01	178.32	11,267.05	4,703.06	-4,697.03	238.08	0.73	MWD	BAKER HUGHES INTEQ
11/1/2013	15,671.00	89.57	179.17	11,268.23	4,798.01	-4,792.00	240.17	1.07	MWD	BAKER HUGHES INTEQ
11/1/2013	15,765.00	89.94	178.87	11,268.63	4,891.95	-4,885.98	241.77	0.51	MWD	BAKER HUGHES INTEQ
11/1/2013	15,860.00	90.28	178.63	11,268.45	4,986.92	-4,980.96	243.85	0.44	MWD	BAKER HUGHES INTEQ
11/1/2013	15,924.00	90.28	178.45	11,268.14	5,050.89	-5,044.94	245.48	0.28	MWD	BAKER HUGHES INTEQ
11/1/2013	15,982.00	90.28	178.45	11,267.86	5,108.88	-5,102.91	247.05	0.00	BIT	BAKER HUGHES INTEQ